HP TFT5110R
User Guide

December 2002 (Second Edition)
Part Number 292491-002

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Contents

About This Guide

Important Safety Information vii
Symbols on Equipment vii
Rack Stability ix
Symbols in Text ix
Getting Help x
Technical Support x
HP Website xi
Authorized Reseller xi
Reader's Comments xi

Chapter 1
Overview

Features 1-2
Options 1-2
Front Panel Components 1-3

Chapter 2
Installation

Kit Contents 2-1
Required Tools 2-1
Installing the TFT5110R 2-2
Accessing the TFT5110R 2-8
Removing the TFT5110R 2-8

Chapter 3
Operation

Main Menu 3-2
Mode Setting 3-2
Global Setting 3-3
OSD Default Menu 3-3
Auto Setup 3-3
Brightness 3-4
Contrast 3-4
Image Adjust 3-5
Languages 3-12
OSD Settings 3-13
Settings Restored on a Global Basis 3-16
Settings Restored on a Mode Basis 3-16
Information 3-17
Status Bar 3-17

Chapter 4
Care and Maintenace

Maintenance and Shipping Guidelines 4-1
Cleaning the Display 4-2
Shipping the TFT5110R 4-2
Moving the TFT5110R Installed in a Rack 4-3

Appendix A
Regulatory Compliance Notices

Regulatory Compliance Identification Numbers A-1
Federal Communications Commission Notice A-1
Class A Equipment A-2
Class B Equipment A-2
Modifications A-3
Cables A-3
Declaration of Conformity for Products Marked with the FCC Logo, United States Only A-3
Canadian Notice (Avis Canadien) A-4
Class A Equipment A-4
Class B Equipment A-4

Mouse Compliance Statement A-4
European Union Notice A-5
Japanese Notice A-6
Taiwanese Notice A-6

Appendix B
Electrostatic Discharge
Grounding Methods B-2

Appendix C
Power Cord Requirements
General Requirements C-1
Country-Specific Requirements C-2

Appendix D
Specifications

About This Guide

This guide provides step-by-step instructions for installation and reference information for operation for the HP TFT5110R.

⚠ Important Safety Information

Before installing this product, read the *Important Safety Information* document included with the server.

Symbols on Equipment

The following symbols may be placed on equipment to indicate the presence of potentially hazardous conditions:

WARNING: This symbol, in conjunction with any of the following symbols, indicates the presence of a potential hazard. The potential for injury exists if warnings are not observed. Consult your documentation for specific details.

This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.

WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.

This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason.

WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure

This symbol on an RJ-45 receptacle indicates a network interface connection.

WARNING: To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.

This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching.

These symbols, on power supplies or systems, indicate that the equipment is supplied by multiple sources of power.

WARNING: To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.

This symbol indicates that the component exceeds the recommended weight for one individual to handle safely.

Weight in kg
Weight in lb

WARNING: To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.

Rack Stability

WARNING: To reduce the risk of personal injury or damage to the equipment, be sure that:

- **The leveling jacks are extended to the floor.**
- **The full weight of the rack rests on the leveling jacks.**
- **The stabilizing feet are attached to the rack if it is a single-rack installation.**
- **The racks are coupled together in multiple-rack installations.**
- **Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.**

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.

WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.

CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Text set off in this manner presents essential information to explain a concept or complete a task.

NOTE: Text set off in this manner presents additional information to emphasize or supplement important points of the main text.

Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

Technical Support

In North America, call the HP Technical Support Phone Center at 1-800-652-6672. This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored. Outside North America, call the nearest HP Technical Support Phone Center. Telephone numbers for worldwide Technical Support Centers are listed on the HP website, www.hp.com.

Be sure to have the following information available before you call HP:

- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level

HP Website

The HP website has information on this product as well as the latest drivers and flash ROM images. You can access the HP website at www.hp.com.

Authorized Reseller

For the name of your nearest authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.
- Elsewhere, see the HP website for locations and telephone numbers.

Reader's Comments

HP welcomes your comments on this guide. Please send your comments and suggestions by e-mail to `ServerDocumentation@hp.com`.

1

Overview

The HP TFT5110R is a rack-mountable 1U flat panel monitor with space available to add a switch behind the unit. The TFT5110R uses a 15-inch (38.1-cm) color active matrix Thin Film Transistor (TFT) Liquid Crystal Display (LCD).

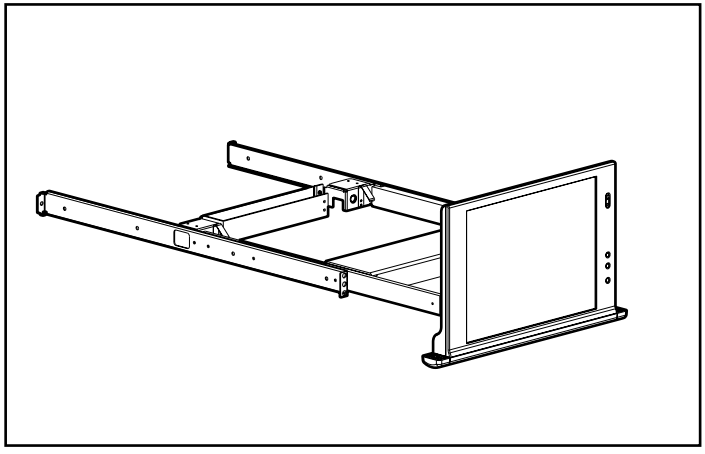

Figure 1-1: TFT5110R

Features

The TFT5110R has the following features:

- Display—15-inch (38.1-cm) viewable area display, viewable with rack doors closed (in most cases)
- Resolution—1024 x 768 resolution at 60 Hz, plus full-screen support for lower resolutions
- VGA connector—Plugs into a standard VGA connector; does not require a special graphics adapter card
- Plug and Play—Plug and Play capability if supported by the system
- On-screen Display (OSD)—Available in ten languages
- Power supply—12V DC/40 W
- Power on/off switch—Powers the display on and off
- OSD scroll up button—Used to scroll up in the OSD menu and adjust the function
- OSD scroll down button—Used to scroll down in the OSD menu and adjust the function
- OSD activation button—Launches, selects, and exits OSD menus

Options

- 1U Telco Rack Option Rails (PN:257934-B21)—Allows the user to install the TFT5110R in third-party racks
- Adjustable Rack Rails (PN:257935-B21)—Allows the user to install the TFT5110R in third-party racks

Front Panel Components

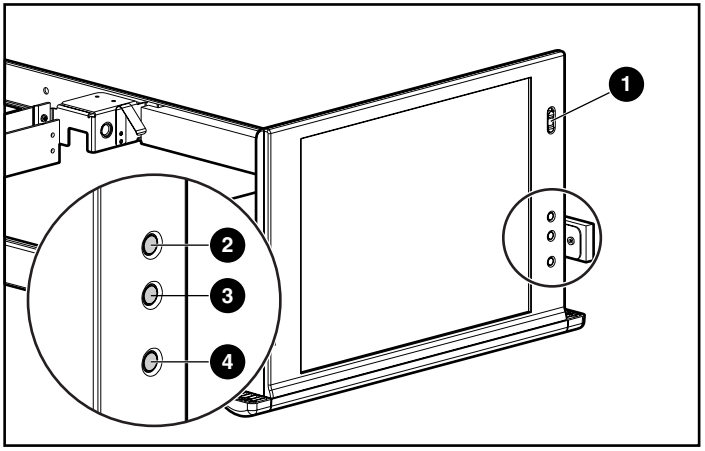

Figure 1-2: TFT5110R front panel components

Item	Description
1	Power on/off switch
2	OSD scroll up button
3	OSD scroll down button
4	OSD activation button

2

Installation

This chapter discusses the installation and setup procedures for installing the TFT5110R into a rack.

Kit Contents

Below are the items and quantities required for assembly:

- M-6 cage nuts (4)
- M-6 screws (8)
- 6-32 screws (12)
- Mounting rails with slides (2)
- Cable management arm assembly (1)
- TFT5110R (1)
- Lock plates (2)

This kit may contain extra pieces of hardware for your convenience.

Required Tools

You need the following:

- Phillips screwdriver
- T-15 Torx screwdriver

Installing the TFT5110R

To install the TFT5110R:

1. Determine the appropriate rack position for the TFT5110R.
2. Measuring from the top of the component below the desired position, use the template on the front and rear of the rack frame to mark the attachment points for the mounting rails and rear cage nuts.

NOTE: When using the template on the rear of the rack, mark the rack at the top of the rack template to help align the next component.

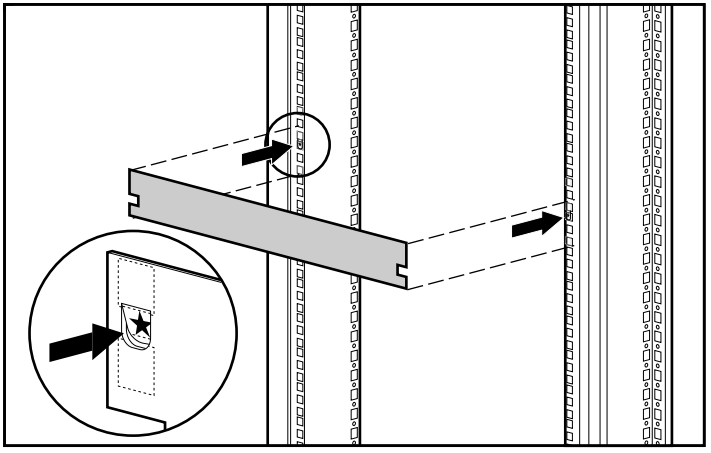

Figure 2-1: Measuring with the 1U template

3. Install the cage nuts and mounting rails to the rack.
   a. Insert one cage nut into the hole marked with the rack template on the rear of the rack (1).
   b. Hook the rail-mounting bracket tabs into the appropriate holes on the rear of the rack, and insert one M-6 screw (2).
   c. Align the front mounting rail holes to the rack, and insert two M-6 screws (3).
   d. Repeat the steps above to install the other mounting rail.

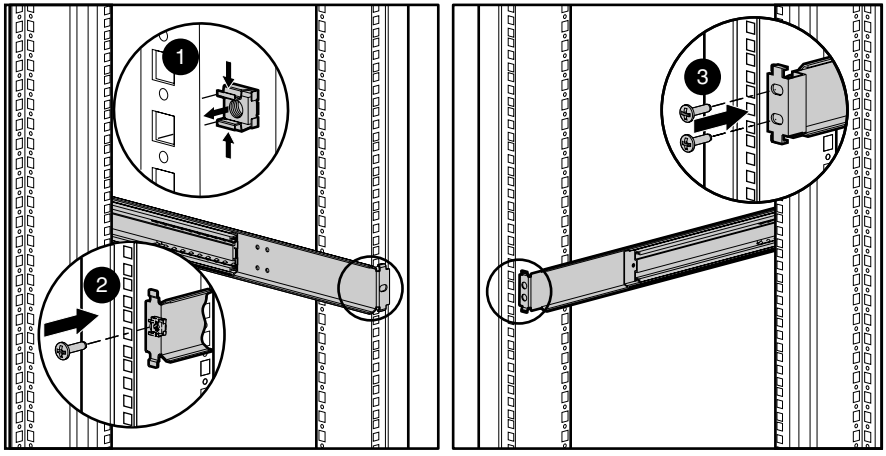

Figure 2-2: Installing the cage nuts and mounting rails

4. Attach the cable management arm assembly to each mounting rail, being sure that the cable access hole faces the right side of the rack.

   NOTE: The cable access hole must be positioned on the right side of the rack to allow appropriate routing of the cables.

   a. Extend the mounting rail to allow the cable management arm assembly to be inserted.

   b. Align the screw holes on the cable management arm assembly with the screw holes on the mounting rails (1).

   c. Insert one 6-32 screw on each side (2).

   d. Tighten the screws (3).

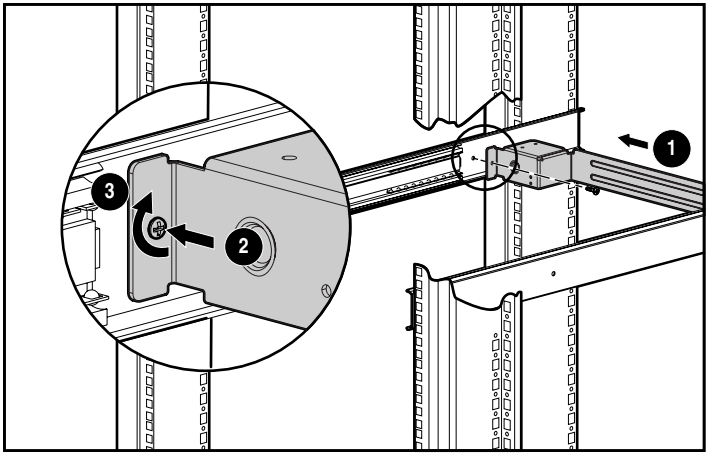

Figure 2-3: Attaching the cable management arm assembly

5. Install the TFT5110R on the mounting rails:
   a. Fully extend the slides until they lock into place.
   b. Press the release mechanism and remove the inner slide brackets (1).
   c. Attach the inner slide brackets to the metal tray using two screws on each side (2).
   d. Align the inner slide brackets (attached to the TFT5110R) with the slides.
   e. Push the TFT5110R into the rack until the inner slide brackets and slides lock into place (3).

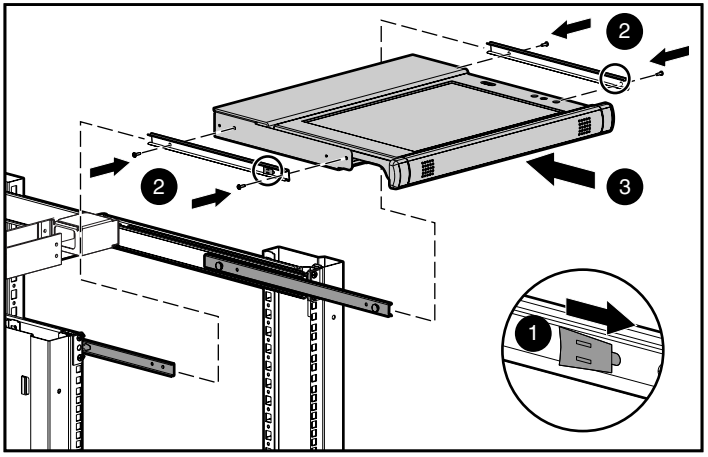

Figure 2-4: Installing the TFT5110R

6. Attach the cable management arm assembly to the rear of the TFT5110R with two 6-32 screws.

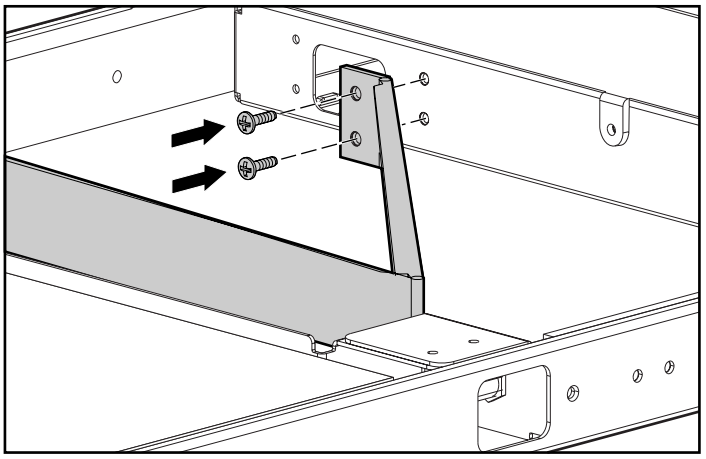

Figure 2-5: Attaching the cable management arm

7. Route the power and video cables through the cable management arm assembly and mounting rail opening.

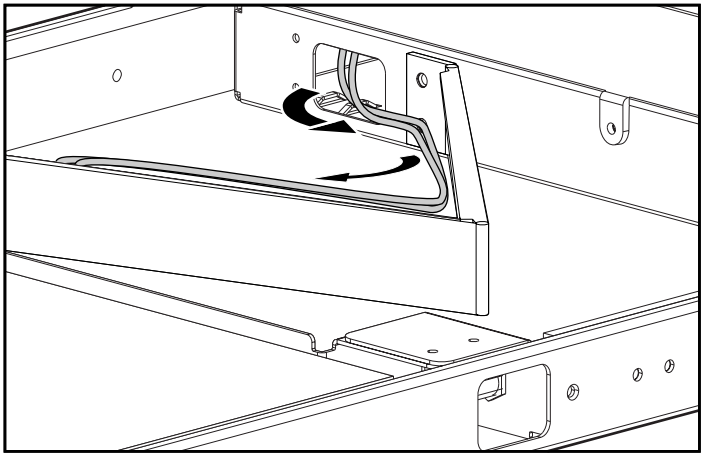

Figure 2-6: Routing the cables

8. Insert the TFT5110R into the rack frame.

   a. Slide the locking mechanism to unlock the slides (1).

> **CAUTION:** If the TFT5110R is not properly aligned with other rack-mounted devices when installed, cosmetic damage to the top pf the unit can occur due to interference. Leave the protective sheet on the unit while making the appropriate adjustments to the M-6 screw on the mounting rails.

   b. Carefully push the TFT5110R into the rack (2).

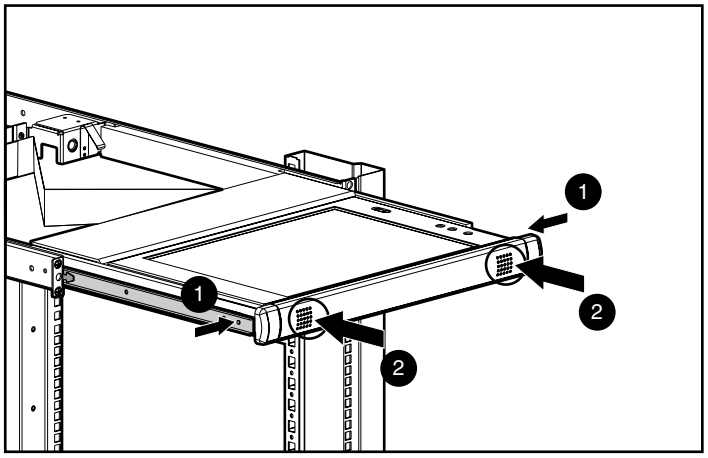

Figure 2-7: Sliding the TFT5110R into the rack

Accessing the TFT5110R

To access the TFT5110R:

1. Gently push in on the unit to unlock the slides, and then fully extend it until the slides lock into place.
2. Rotate the display to the desired viewing level.

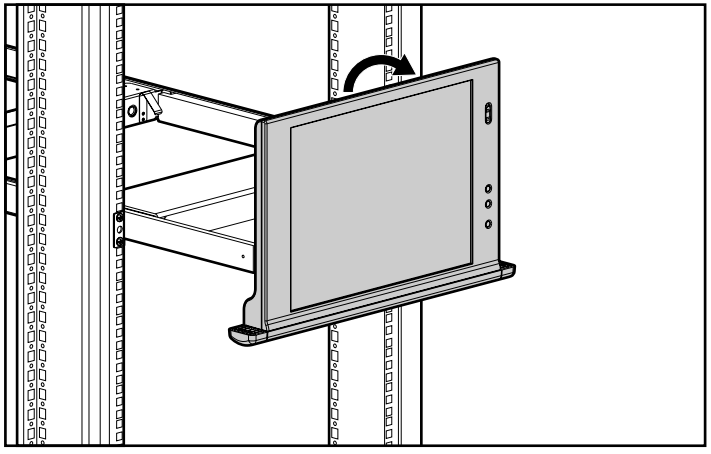

Figure 2-8: Accessing the TFT5110R

Removing the TFT5110R

To remove the TFT5110R, reverse the order of the steps listed in the “Installing the TFT5110R” section.

3

Operation

The on-screen display (OSD) buttons are used to operate the TFT5110R OSD menus.

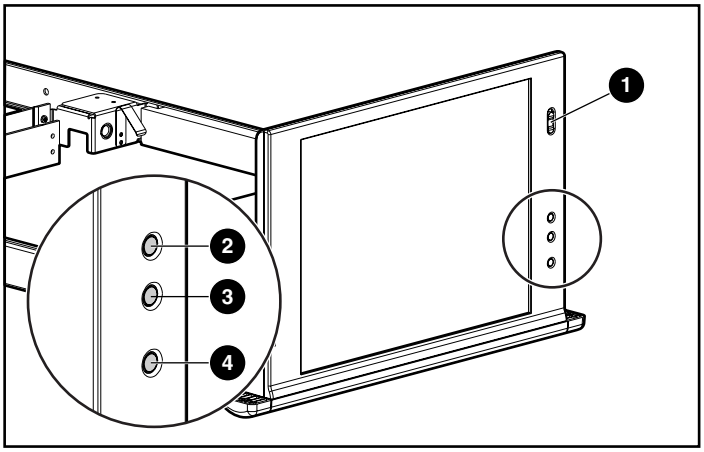

Figure 3-1: OSD buttons

Table 3-1: OSD Buttons

Reference Number	Component	Function
1	Power on/off switch	Powers on/off the display
2	OSD scroll up button	Used to scroll up in the OSD menu and adjust the function
3	OSD scroll down button	Used to scroll down in the OSD menu and adjust the function
4	OSD activation button	Launches, selects, and exits the menu OSD

Main Menu

To launch the main menu:

1. Press the OSD activation button on the front panel. The main menu is displayed on the screen.
2. To select a menu item, scroll down by pressing the **Down** (-) button, or scroll up by pressing the **Up** (+) button and then press the OSD activation button to activate the highlighted menu item.

Mode Setting

Mode settings are stored in Electrical Erasable Programmable Read Only Memory (EEPROM) and can be changed by running the function again or by resetting the Factory Presets.

Global Setting

Global settings are stored in the EEPROM and are restored when the system is powered on. The settings can be changed by running the function again or by resetting the Factory Presets.

NOTE: Mode settings and Global settings are used throughout the in this chapter sections.

OSD Default Menu

The **OSD Default** menu provides access to the following functions:

- **Auto setup**
- **Brightness**
- **Contrast**
- **Image adjust**
- **Languages**
- **OSD settings**
- **Settings restored on a Global basis**
- **Settings restored on a Mode basis**
- **Information**
- **Exit**

Auto Setup

This option performs four functions automatically:

Auto Level

Auto Level automatically adjusts the black and white levels of the screen. It is a Global setting.

Auto Position

Auto Position automatically adjusts the position of the screen. It is a Mode setting.

Auto Phase

Auto Phase automatically adjusts the phase. It is a Global setting.

Auto Clock

Auto Clock automatically adjusts the output clock per line to match input. It is a Global setting.

Brightness

This option displays a slider bar within the status bar to allow the adjustment of the back light brightness.

Brightness is a Mode setting.

- **Up (+)** increases the current value.
- **Down (-)** decreases the current value.
- **Select** accepts the current value and exits the slider bar.

Contrast

This option displays a slider bar within the status bar to allow the adjustment of the screen contrast. **Contrast** adjustments are more discernible when the background is white. **Contrast** will launch **Auto Level** if color values are out of range.

Contrast is a Mode setting.

- **Up (+)** increases the current value.
- **Down (-)** decreases the current value.
- **Select** accepts the current value and exits the slider bar.

Image Adjust

This option contains a sub-menu:

- **Horizontal Position**
- **Vertical Position**
- **Image Enhancement**
- **Color**
- **Exit**
  - — **Up (+)** moves up a selection in the **Image Adjust** menu list.
  - — **Down (-)** moves down a selection in the **Image Adjust** menu list.
  - — **Select** activates one of the **Image Adjust** actions.

Horizontal Position

This option displays a slider bar within the status bar to allow the adjustment of the screen's horizontal position.

The center of the bar is obtained from the factory-preset value for **Horizontal Position**. At value=MIN, the selection of + positioning response may vary between XGA and SXGA panels. This is caused by physical limitations at MIN OSD placement. The bar allows a range of >/= 8 and </= (Htotal - Hpixel - 9).

Horizontal Position is a Mode setting.

- **Up (+)** increases the current value.
- **Down (-)** decreases the current value.
- **Select** accepts the current value and exits the slider bar.

Vertical Position

This option displays a slider bar within the status bar to allow the adjustment of the screen's vertical position.

The center of the bar is obtained from the factory-preset value for **Vertical Position**. The bar allows a range of >/= 1 and </= (Vtotal - Vpixel - 2).

Vertical Position is a Mode setting.

- **Up (+)** increases the current value.
- **Down (-)** decreases the current value.
- **Select** accepts the current value and exits the slider bar.

Image Enhancement

This option contains three choices:

- **Context Sensitive**
- **Text** (sharp)
- **Video** (smooth)

Up (+) moves up a selection in the **Image Enhancement** menu list and activates that choice.

Down (-) moves down a selection in the **Image Enhancement** menu list and activates that choice.

Select exits the **Image Enhancement** menu list leaving the last selection as the new default.

Context Sensitive

When selected, the IQ Scaling Engine is automatically adjusted on a per-pixel basis, allowing text to be sharpened and graphics images smoothed.

Text

When selected, the IQ Scaling Engine is set to use a high sharpening filter to allow for sharper text.

Video

When selected, the IQ Scaling Engine is set to use a low sharpening filter to allow sharper graphics.

Color

This option contains a sub-menu:

- **Color Temp**
- **RGB Adjust**
- **Black Level Adjust**
- **Advanced**
- **Exit**

Up (+) moves up a selection in the **Color** menu list.

Down (-) moves down a selection in the **Color** menu list.

Select activates one of the **Color** actions.

Color Temp

This option contains a sub-menu:

NOTE: Color Temp-Cool, -**Neutral**, and -**Warm** are Mode settings.

- **Cool**

  When selected, a Gamma table for **Cool** temperatures loads for all three-color channels.

- **Neutral**

  When selected, a Gamma table for **Neutral** temperatures loads for all three-color channels.

- **Warm**

  When selected, a Gamma table for **Warm** temperatures loads for all three-color channels.

- **Exit**

Up (+) moves up a selection in the **Color Temp** menu list and activates that choice.

Down (-) moves down a selection in the **Color Temp** menu list and activates that choice.

Select exits the **Color Temp** menu list leaving the last selection as the new default.

RGB Adjust

This option contains a sub-menu:

NOTE: RGB Adjust-Red, -**Green**, and -**Blue** are Mode settings.

- **Red**

  This option displays a slider bar within the status bar to allow the adjustment of the screen's **Red** color.

  — **Up (+)** increases the current value.

  — **Down (-)** decreases the current value.

  — **Select** accepts the current value and exits the slider bar.

- **Green**

  This option displays a slider bar within the status bar to allow the adjustment of the screen's **Green** color.

  — **Up (+)** increases the current value.

  — **Down (-)** decreases the current value.

  — **Select** accepts the current value and exits the slider bar.

- **Blue**

  This option displays a slider bar within the status bar to allow the adjustment of the screen's **Blue** color.

  — **Up (+)** increases the current value.

  — **Down (-)** decreases the current value.

  — **Select** accepts the current value and exits the slider bar.

- **Exit**

  — **Up (+)** moves up a selection in the **RGB Adjust** menu list.

  — **Down (-)** moves down a selection in the **RGB Adjust** menu list.

  — **Select** activates one of the **RGB Adjust** actions.

Black Level Adjust

This option contains a sub-menu:

NOTE: Black Level Adjust-Red, -**Green**, and -**Blue** are Mode settings.

- **Red**

  This option displays a slider bar within the status bar to allow the adjustment of the screen's **Black** level for **Red**.

  — **Up (+)** increases the current value.

  — **Down (-)** decreases the current value.

  — **Select** accepts the current value and exits the slider bar.

- **Green**

  This option displays a slider bar within the status bar to allow the adjustment of the screen's **Black** level for **Green**.

  — **Up (+)** increases the current value.

  — **Down (-)** decreases the current value.

  — **Select** accepts the current value and exits the slider bar.

- **Blue**

  This option displays a slider bar within the status bar to allow the adjustment of the screen's **Black** level for **Blue**.

  — **Up (+)** increases the current value.

  — **Down (-)** decreases the current value.

  — **Select** accepts the current value and exits the slider bar.

- **Exit**

  — **Up (+)** moves up a selection in the **Black Adjust** menu list.

  — **Down (-)** moves down a selection in the **Black Adjust** menu list.

  — **Select** activates one of the **Black Adjust** actions.

Advanced

This option contains a sub-menu:

- **Phase Adjust**

  This option displays a slider bar within the status bar to allow the adjustment of the analog signals phase.

  Advanced-**Phase** is a Mode setting.

  — **Up** (+) increases the current value.

  — **Down** (-) decreases the current value.

  — **Select** accepts the current value and exits the slider bar.

- **Clock Adjust**

  This option displays a slider bar within the status bar to allow the adjustment of the **Horizontal Clocks**.

  Advanced-**Clock** is a Mode setting.

  — **Up** (+) increases the current value.

  — **Down** (-) decreases the current value.

  — **Select** accepts the current value and exits the slider bar.

- **Exit**

  — **Up (+)** moves up a selection in the **Advanced** menu list.

  — **Down** (-) moves down a selection in the **Advanced** menu list.

  — **Select** activates one of the **Advanced** actions.

Languages

This option contains a sub-menu:

- **English**
- **Dutch**
- **French**
- **German**
- **Italian**
- **Japanese**
- **Portuguese**
- **Simple Chinese**
- **Spanish**
- **Swedish**

Up (+) moves up a selection in the **Language** menu list.

Down (-) moves down a selection in the **Language** menu list.

Select exits the Language menu list and activates the selected **Language**.

OSD Settings

This option contains a sub-menu:

- **OSD Position**
- **OSD Size**
- **OSD Timeout**
- **Exit**

Up (+) moves up a selection in the **OSD Settings** menu list.

Down (-) moves down a selection in the **OSD Settings** menu list.

Select activates one of the **OSD Settings** actions.

OSD Position

This option contains a sub-menu:

- Horizontal Position
- Vertical Position
- Exit

Up (+) moves up a selection in the **OSD Position** menu list.

Down (-) moves down a selection in the **OSD Position** menu list.

Select activates one of the **OSD Position** actions.

Horizontal Position

This option allows the location of the **OSD** window to move horizontally on the screen.

OSD Horizontal Position Adjust is a Mode setting.

- **Up (+)** moves window to the right.
- **Down (-)** moves window to the left.
- **Select** accepts the location and exits back to the sub-menu.

Vertical Position

This option allows the location of the **OSD** window to move up and down on the screen.

OSD Vertical Position Adjust is a Mode setting.

- **Up (+)** increases the current value.
- **Down (-)** decreases the current value.
- **Select** accepts the location and exits back to the sub-menu.

OSD Size

This option contains a sub-menu:

- **Normal**
- **Double**

Up (+) moves up a selection in the **OSD Size** menu list and activates that choice.

Down (-) moves down a selection in the **OSD Size** menu list and activates that choice.

Select exits the **OSD Size** menu list leaving the last selection as the new default.

OSD Size is a Global setting.

Normal

OSD size is set to normal character size.

Double

OSD size is set to double character size. The OSD position is adjusted if necessary to remain visible on the screen.

OSD Timeout

This option displays a slider bar at the right side of the OSD display to allow the adjustment of **OSD Timeout**. The timeout ranges from 5 to 55 seconds with 5-second intervals. The default setting is 10 seconds.

OSD Timeout is a Mode setting.

- **Up (+)** increases the time the OSD remains displayed.
- **Down (-)** decreases the time the OSD remains displayed.
- **Select** accepts the current value and exits the slider bar.

Settings Restored on a Global Basis

The following settings are restored on a Global basis:

- **Auto Level / RGB Adjust / Black Level Adjust / Contrast**
- **Brightness**
- **OSD Horizontal Position**
- **OSD Vertical Position**
- **OSD Transparency**
- **OSD Size**
- **OSD Fade Out Timer**
- **Color Temp**
- **Language Selection** (not restored)

Settings Restored on a Mode Basis

The following settings are restored on a Mode basis:

NOTE: The mode being displayed is restored.

- **Auto Position**
- **Image Adjust Horizontal Position**
- **Image Adjust Vertical Position**

Information

The OSD displays the following unit information:

- Model number(s)
- Micro Code Version
- EXIT

Status Bar

The status bar displays rate, for example, 1024x768 60 Hz.

4

Care and Maintenace

Maintenance and Shipping Guidelines

This section discusses maintenance and shipping guidelines for the TFT5110R.

To protect the unit from overheating and other types of damage:

- Use only a power source and connection appropriate for this unit, as indicated on the marking label and back plate.
- If an extension cord or power strip is used, be sure that the cord or strip is rated for the product. Also, be sure that the total ampere ratings of all products plugged into the extension cord or power strip do not exceed 80 percent of the extension cord or strip ampere ratings limit.
- Do not overload an electrical outlet, power strip, or convenience receptacle. The overall system load must not exceed 80 percent of the branch circuit rating. If power strips are used, the load should not exceed 80 percent of the power strip input rating.
- Install the unit near an outlet that you can reach easily. Disconnect the product by grasping the plug firmly and pulling it from the outlet. Never disconnect it by pulling the cord.
- Unplug the unit from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners.
- Do not block or cover the slots and openings in the monitor. The slots and openings are provided for ventilation. Never push objects of any kind into these slots or openings.

- Do not drop the unit or place it on an unstable surface.
- Do not allow anything to rest on the power cord. Do not walk on the cord.
- Keep the unit in a well-ventilated area, away from excessive light, heat, and moisture. Keep the monitor away from high-capacity transformers, electric motors, and other strong magnetic fields.
- Do not attempt to service this product yourself. Adjust only those controls that are covered by the operating instructions. If the unit is not operating properly or has been dropped or damaged, contact your HP authorized dealer, reseller, or service provider.

Cleaning the Display

To clean the display:

1. Unplug and turn the unit off.
2. Dust the panel by wiping the screen with a soft, clean cloth.

If the screen requires additional cleaning, use any anti-static CRT screen cleaner.

CAUTION: Do not use benzene, thinner, ammonia, or any volatile substance to clean the monitor screen or cabinet. These chemicals may damage the monitor. Never use water to clean an LCD screen.

Shipping the TFT5110R

Keep the original packing box in a storage area in case you need to move or ship the integrated monitor and unit.

Moving the TFT5110R Installed in a Rack

When moving the TFT5110R installed in a rack, it is recommended to install the lock plates on each side of the unit and rack.

To install the lock plates:

1. Fully extend the mounting rails until they lock.
2. Place the lock plate behind the corner of the front plastic bezel, being sure that the top and bottom holes are aligned with the front plastic bezel pins.
3. Insert one 6-32 screw (1) into the middle hole on the lock plate, securing it to the unit.
4. Insert one M-6 screw (2) to the other end of the lock plate, securing the unit to the rack.
5. Repeat steps 2 through 4 to install the other lock plate.

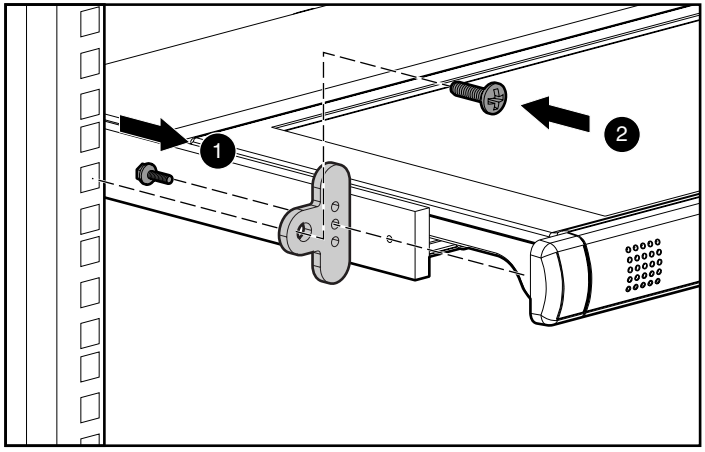

Figure 4-1: Installing the lock plates

A

Regulatory Compliance Notices

Regulatory Compliance Identification Numbers

For the purpose of regulatory compliance certifications and identification, your product has been assigned a unique HP series number. The series number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to this series number. The series number should not be confused with the marketing name or model number of the product.

Federal Communications Commission Notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (i.e., personal computers). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

The rating label on the device shows which class (A or B) the equipment falls into. Class B devices have an FCC ID on the label. Class A devices do not have an FCC ID on the label. Once the class of the device is determined, refer to the following corresponding statement.

Class A Equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

Class B Equipment

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by HP Company may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Declaration of Conformity for Products Marked with the FCC Logo, United States Only

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For questions regarding your product, contact:

- HP Company

  P. O. Box 692000, Mail Stop 530113

  Houston, Texas 77269-2000

  Or, call 1-800-652-6672

For questions regarding this FCC declaration, contact:

- HP Company

  P. O. Box 692000, Mail Stop 510101

  Houston, Texas 77269-2000

  Or, call (281) 514-3333

To identify this product, refer to the Part, Series, or Model number found on the product.

Canadian Notice (Avis Canadien)

Class A Equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Class B Equipment

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Mouse Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

European Union Notice

CE

Products bearing the CE marking comply with the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community and if this product has telecommunication functionality, the R&TTE Directive (1999/5/EC).

Compliance with these directives implies conformity to the following European Norms (in parentheses are the equivalent international standards and regulations):

- EN 55022 (CISPR 22) – Electromagnetic Interference
- EN55024 (IEC61000-4-2, 3, 4, 5, 6, 8, 11) – Electromagnetic Immunity
- EN61000-3-2 (IEC61000-3-2) – Power Line Harmonics
- EN61000-3-3 (IEC61000-3-3) – Power Line Flicker
- EN 60950 (IEC 60950) – Product Safety

Japanese Notice

ご使用になっている装置にVCCIマークが付いていましたら、次の説明文をお読み下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

VCCIマークが付いていない場合には、次の点にご注意下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です　この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Taiwanese Notice

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

B

Electrostatic Discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ± 10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have a HP authorized reseller install the part.

NOTE: For more information on static electricity, or assistance with product installation, contact your HP authorized reseller.

C

Power Cord Requirements

The power cord set meets the requirements for use in the country where you purchased the equipment. The voltage selection switch allows you to select the appropriate line voltage for the server.

Power cord sets for use in other countries must meet the requirements of the country where you use the server. For more information on power cord set requirements, contact your HP authorized dealer.

General Requirements

The requirements listed below are applicable to all countries:

- The length of the power cord must be at least 1.8 m (6.0 feet) and a maximum of 3.7 m (12 feet).
- The power cord set must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord will be used.
- The power cord set must have a minimum current capacity and nominal voltage rating of 10 A/125 volts AC, or 10A/250 volts AC, as required by the power system of each country.
- The appliance coupler must meet the mechanical configuration of an EN60320/IEC 320 Standard Sheet C13 Connector, for mating with the appliance outlet on the computer.

Country-Specific Requirements

Use Table C-1 to identify the appropriate accredited agency in your country.

Table C-1: Power Cord Set Requirements By Country

Country	Accredited Agency	Applicable Note Numbers
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	SETI	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	JIS	3
Norway	NEMKO	1
Sweden	SEMKO	1
Switzerland	SEV	1
United Kingdom	BSI	1
United States	UL	2

1. Flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm^2 conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
2. Flexible cord must be Type SVT or equivalent, No. 18 AWG, 3-conductor. Wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V).
3. Appliance coupler, flexible cord, and wall plug must bear a T mark and registration number in accordance with the Japanese Dentori Law. Flexible cord must be Type VCT or VCTF, 3-conductor, 1.0 mm^2 conductor size. Wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7A, 125V) configuration.

D

Specifications

Table D-1: TFT5110R Specifications

Display	38.1 cm	15 inches
Type	Flat panel, Active matrix-TFT LCD	
Viewable Image Size	38.1 cm	15 inches
Face Treatment	Transparent protector with antiglare coating	
Maximum Weight (unpacked)	4.8 kg	10.6 lb
Maximum Dimensions		
Height	3.02 cm	1.19 inches
Depth	40.05 cm	15.75 inches
Width	42.06 cm	16.56 inches

Index

A

accessing the unit 2-8
advanced 3-11
auto clock 3-4
auto level 3-3
auto phase 3-4
auto position 3-4
auto setup 3-3

B

black level adjust 3-10
boot straps, using B-2
brightness 3-4
buttons
  OSD activation 1-3
  OSD scroll down 1-3
  OSD scroll up 1-3

C

cable management arm
  attaching 2-6
  routing cables 2-6
care and maintenance 4-1
clock adjust 3-11
color, vertical, position 3-7
color-temp, vertical, position 3-8
compatibility 1-1
components of the TFT5110R 1-3
context sensitive 3-7
contrast 3-4

D

default menu, on-screen display (OSD) 3-3
display
  OSD activation button 1-3
  OSD scroll down button 1-3
  OSD scroll up button 1-3
  power on/off 1-3
  resolution 1-2
display, cleaning 4-2

E

electrostatic discharge *See* ESD
ESD (electrostatic discharge)
  obtaining additional information B-2
  precautions B-1
  preventing B-1
  storing products B-1
  transporting products B-1
  types of damage from B-1

F

FCC notices, mouse A-4
features 1-2
  display 1-2
  OSD activation 1-2
  OSD languages 1-2

OSD scroll down button 1-2
OSD scroll up button 1-2
Plug and Play 1-2
power on/off switch 1-2
power supply 1-2
resolution 1-2
VGA connector 1-2
front panel components 1-3

G

global setting, on-screen display 3-3
grounding methods B-2
grounding straps
specifications B-2
wearing B-2
grounding, suggested equipment for B-2
guidelines, maintenance and shipping 4-1

H

heel straps, using B-2
help resources x
horizontal position 3-5, 3-14
HP authorized reseller xi
HP series number A-1
HP website xi

I

image adjust 3-5
image enhancement 3-6
installation
cable management arm assembly 2-4
cage nuts 2-3
lock plates 4-3
mounting rails 2-3
TFT5110R 2-2

K

kit contents 2-1

L

languages 3-12
Liquid Crystal Display (LCD) 1-1

M

main menu, on-screen display 3-2
maintenance
cleaning the display 4-2
shipping guidelines 4-1
menu item, selecting 3-2
mode setting 3-2
mouse compliance statement A-4

O

on-screen display (OSD)
contrast 3-4
horizontal position 3-5
image adjust 3-5
information 3-17
position 3-13
settings 3-13
size 3-15
status bar 3-17
timeout 3-15
vertical position 3-6
operating the TFT5110R 3-1
options 1-2
overview 1-1

P

parts
proper handling B-1
storing B-1
transporting B-1
phase adjust 3-11
power cord set
agency approval C-1
applicance coupler specifications C-1
cable length C-1
cable specifications C-2

country-specific requirements C-2
current capacity C-1
obtaining additional information C-1
requirements C-1
voltage rating C-1
wall plug specifications C-2

R

regulatory compliance notices
Canadian A-4
European Union A-5
HP series number A-1
identification number A-1
Japanese A-6
mouse compliance statement A-4
Taiwanese A-6
removing the unit 2-8
required tools 2-1
RGB adjust 3-9

S

series number for regulatory compliance A-1
settings
restored on a global basis 3-16
restored on a mode basis 3-16
static-safe containers
storing products in B-1
transporting products in B-1
symbols in text ix
symbols on equipment vii
system, preventing electrostatic damage to B-1

T

technical support x
telephone numbers x, xi
text 3-7
TFT5110R
accessing 2-8
care and maintenance 4-1
features 1-2
front panel components 1-3
moving 4-3
options 1-2
removing the unit 2-8
resolution 1-2
shipping 4-2
Thin Film Transistor (TFT) 1-1
tools, conductive field service type B-2

V

vertical position 3-6, 3-14
video 3-7

W

wall plug specifications C-2
websites, HP xi
wrist straps
specifications B-2
using B-2